



December 7, 2016

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

**RE: Administrative Permit Amendment Request  
MSOP 153-35932-00038  
Gavilon Grain, LLC – Shelburn**

Dear Sir or Madam:

Gavilon Grain, LLC (Gavilon) hereby submits an Administrative Permit Amendment Request for the Minor Source Operating Permit (MSOP) issued to Gavilon for the grain elevator located near Shelburn, Indiana. Gavilon is requesting an administrative permit amendment to the MSOP in order to authorize the installation and operation of a new concrete grain storage tank and several new internal grain handling conveyors.

Gavilon intends to install one new concrete grain storage tank (Tank 22) with a permanent storage capacity of approximately 400,000 bushels. With the addition of the new storage tank, the total permanent grain storage capacity of the grain elevator near Shelburn will be increased to 1,526,013 bushels. Although there is an increase in permanent storage capacity as a result of this project, the facility will not be subject to New Source Performance Standard (NSPS) Subpart DD – Grain Elevators because the facility does not meet the definition of either a grain storage elevator or a grain terminal elevator as prescribed in the rule.

In addition to the new grain storage tank, Gavilon also intends to reconfigure the internal grain handling conveyors of the elevator by installing equipment to accommodate the new storage tank. Gavilon is planning to install a new enclosed shipping leg, (identified as L8, with a maximum rating of 30,000 bushels per hour) and a new reversible tank 22 fill belt conveyor (identified as B6, with a maximum rating of 20,000 bushels per hour) at new storage tank T22. Conveyor B6 will be connected to the existing grain elevator internal handling system, allowing Gavilon to either fill tank T22 immediately upon receipt of grain from the farm or reposition grain from existing grain storage silos to tank T22 at a later time.

The new shipping leg (L8) will be used to reclaim grain from the new storage tank. Grain will be sent through an enclosed spout from the side of the new tank directly to shipping leg L8. From the shipping leg, the grain can either be routed to the existing bulkweigher for rail loadout, or the grain can be sent to new belt conveyor B6, which will be reversed to send the grain back to the existing elevator equipment for shipment by truck.

As part of this project, Gavilon also plans to stop reclaiming grain at the East Pad (XT4) with trucks that transfer grain back to the existing elevator receiving pits. Instead, Gavilon intends to install a new enclosed bunker reclaim drag conveyor (identified as D24, with a maximum rating of 20,000 bushels per



hour). Grain that is transferred from East Pad XT4 by new drag conveyor D24 will be sent directly to shipping leg L8. From leg L8, the grain will be sent to belt conveyor B6, where the grain will then either be stored in the new or existing storage silos or sent to existing equipment for shipping.

Due to the changes in both the internal handling equipment configuration and the method for reclaiming grain from East Pad XT4, Gavilon has determined that there will be a net decrease in potential emissions of particulate matter as a result of this project. Gavilon has provided potential-to-emit calculations as an attachment to this administrative amendment request.

Gavilon believes that the Indiana Department of Environmental Management (IDEM) can address the changes identified in this request through the administrative permit amendment mechanisms found in Indiana state regulations. Incorporation of the new equipment into the MSOP qualifies as an administrative change because the change involves adding emissions units of the same type that are already permitted at this facility. The new equipment is also subject to the same applicable requirements and permit terms as the existing equipment. Additionally, Gavilon is not a major source for either the Prevention of Significant Deterioration (PSD) construction permit program or the Title V operating permit program, and this project actually results in an emissions decrease. Therefore, an administrative permit amendment is an appropriate regulatory mechanism to make all the permit changes that Gavilon has requested as part of this submittal [See IAC 2-6.1-6(d)(8)].

Gavilon has attached a document that identifies the specific conditions of the MSOP that Gavilon is requesting IDEM to revise. Gavilon hopes that this document will expedite the administrative permit amendment process for IDEM.

Should you have any questions or require additional details regarding this administrative permit amendment request, please feel free to contact Bob Sheeder of NAQS – *Environmental Experts* at (402) 489-1111 or [bob@naqs.com](mailto:bob@naqs.com). You may also contact me at (402) 889-4070 or [brian.wanzenried@gavilon.com](mailto:brian.wanzenried@gavilon.com).

Sincerely,

Brian Wanzenried  
Director of Environmental

#### Certification Statement

I certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in this administrative permit amendment request and its attachments are true, accurate, and complete.

Brian Carleton  
Vice President of Operations

**Gavilon Grain, LLC – Shelburn  
Administrative Amendment Request  
MSOP 153-35932-00038**

**Proposed changes to Conditions A.2(c) and D.1(c):**

This stationary source consists of the following emission units and pollution control devices:

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- (c) One (1) internal handling operation, identified as Grain Conveying, with a maximum capacity of 54,700 bushels per hour (1,641 tons per hour), constructed between 1962 and 2010 **2016**, consisting of the following:

<b>Emissions Unit Description</b>	<b>Year Constructed</b>	<b>Maximum (bushels/hr)</b>
***		
Portable Belt Loader	2002	5,000
<b>Shipping Leg (L8)</b>	<b>2016</b>	<b>30,000</b>
<b>Tank 22 Fill Belt Conveyor (B6)</b>	<b>2016</b>	<b>20,000</b>
<b>Bunker Reclaim Drag Conveyor (D24)</b>	<b>2016</b>	<b>20,000</b>

**Proposed changes to Conditions A.2(d) and D.1(d):**

One (1) Storage system, identified as STORAGE, constructed in 1972 and modified in 1977, 1987, 2006, 2009, 2014, 2015, **and 2016** with emissions exhausted to the atmosphere, and consisting of the following:

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- (10) One concrete storage tank, constructed in 2016, identified as Tank 22 (T22), with total storage capacity of 400,000 bushels, with a maximum fill and unload capacity of 20,000 bushels per hour, and exhausting to the atmosphere.

**Proposed changes to Condition D.1.2(d):**

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The following table shows the maximum process weight rate and allowable particulate emission rate for each emission unit:

<b>Emissions Unit Description</b>	<b>Maximum (bushels/hr)</b>	<b>Maximum Process Weight (tons/hr)</b>	<b>326 IAC 6-3-2 Allowable PM Emissions (lbs/hr)</b>
***			
Dryer 1	4,700	141	54.8
<b>Tank 22 (T22)</b>	<b>20,000</b>	<b>600</b>	<b>71.2</b>
<b>Shipping Leg (L8)</b>	<b>30,000</b>	<b>900</b>	<b>76.2</b>
<b>Tank 22 Fill Belt Conveyor (B6)</b>	<b>20,000</b>	<b>600</b>	<b>71.2</b>
<b>Bunker Reclaim Drag Conveyor (D24)</b>	<b>20,000</b>	<b>600</b>	<b>71.2</b>

Emissions Calculations - SUMMARY

Gavilon Grain, LLC

7646 North 125 East, Shelburn, Indiana 47879

Summary of Uncontrolled Potential to Emit (PTE)

Pollutant	Non-Fugitive Emissions	Fugitive Emissions	Total PTE after Amendment	Total PTE from 8/11/2015 MSOP	Change in Emissions
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
PM	204.78	37.93	242.71	271.44	-28.73
PM <sub>10</sub>	74.03	9.10	83.13	91.83	-8.70
PM <sub>2.5</sub>	13.17	1.21	14.38	15.75	-1.37
SO <sub>2</sub>	0.11	-	0.11	0.11	0.00
NO <sub>x</sub>	18.02	-	18.02	18.02	0.00
VOC	0.99	-	0.99	0.99	0.00
CO	15.14	-	15.14	15.14	0.00
CO <sub>2e</sub>	21,753	-	21,753	N/A	N/A
Lead	0.00	-	0.00	0.00	0.00
Hexane	0.32	-	0.32	0.32	0.00
Combined HAPs	0.34	-	0.34	0.34	0.00

Total permanent storage capacity of this grain elevator does not exceed 2.5 million bushels, and this facility is not subject to NSPS Subpart DD. Therefore, fugitive emissions do not count towards major source applicability for PSD, Title V, or Emission Offset purposes.

Summary of Controlled Potential to Emit (PTE)

Pollutant	Non-Fugitive Emissions	Fugitive Emissions	Total PTE after Amendment	Total PTE from 8/11/2015 MSOP	Change in Emissions
	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
PM	180.94	13.81	194.75	244.63	-49.88
PM <sub>10</sub>	66.22	3.66	69.88	83.04	-13.16
PM <sub>2.5</sub>	11.85	0.67	12.52	14.26	-1.74
SO <sub>2</sub>	0.11	-	0.11	0.11	0.00
NO <sub>x</sub>	18.02	-	18.02	18.02	0.00
VOC	0.99	-	0.99	0.99	0.00
CO	15.14	-	15.14	15.14	0.00
CO <sub>2e</sub>	21,753	-	21,753	N/A	N/A
Lead	0.00	-	0.00	0.00	0.00
Hexane	0.32	-	0.32	0.32	0.00
Combined HAPs	0.34	-	0.34	0.34	0.00

Total permanent storage capacity of this grain elevator does not exceed 2.5 million bushels, and this facility is not subject to NSPS Subpart DD. Therefore, fugitive emissions do not count towards major source applicability for PSD, Title V, or Emission Offset purposes.



**Emissions Calculations - Natural Gas Grain Dryer**  
**Gavilon Grain, LLC**  
**7646 North 125 East, Shelburn, Indiana 47879**

NO CHANGE IN CALCULATIONS DUE TO ADMINISTRATIVE AMENDMENT

Heat Input Capacity MMBtu/hr	HHV mmBtu mmscf	Potential Throughput MMCF/yr
41.96	1020	360.4

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.34	1.37	1.37	0.11	18.02	0.99	15.14

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.  
 PM2.5 emission factor is filterable and condensable PM2.5 combined.  
 \*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.  
 MMBtu = 1,000,000 Btu  
 MMCF = 1,000,000 Cubic Feet of Gas  
 Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03  
 Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu  
 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

**HAPS Calculations**

	HAPs - Organics					
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Total - Organics
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.6E-02	1.8E+00	3.4E-03	
Potential Emission in tons/yr	3.784E-04	2.162E-04	1.351E-02	3.243E-01	6.126E-04	3.390E-01

	HAPs - Metals					
	Lead	Cadmium	Chromium	Manganese	Nickel	Total - Metals
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03	
Potential Emission in tons/yr	9.009E-05	1.982E-04	2.523E-04	6.847E-05	3.784E-04	9.874E-04
	<b>Total HAPs</b>					<b>0.34</b>
	<b>Worst HAP</b>					<b>0.32</b>

Methodology is the same as above.

The five highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Greenhouse Gas Calculations**

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120,000	2.3	2.2
Potential Emission in tons/yr	21,622	0.4	0.4
Summed Potential Emissions in tons/yr	21,623		
CO2e Total in tons/yr	21,753		

**Methodology**

The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64.  
 Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03.  
 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.  
 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton  
 CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O Potential Emission ton/yr x N2O GWP (310).

Emissions Calculations - Storage Pile Wind Erosion  
 Gavilion Grain, LLC  
 7646 North 126 East, Shelburn, Indiana 47879

NO CHANGE IN CALCULATIONS DUE TO ADMINISTRATIVE AMENDMENT

STORAGE PILE AREA	East Pile	Current Permit West Pile	Total
Length (feet) =	510	500	
Width (feet) =	218	145	
Area (feet <sup>2</sup> ) =	111,180	72,500	
Conversion Factor (feet <sup>2</sup> /acre) =	43,560		
Storage Pile Area (acres) =	2.55	1.66	4.22

STORAGE PILE WIND EROSION EMISSION FACTOR

Storage Pile Wind Erosion Emission Factor =  $E = 1.77 * (s / 1.5)^{1.5} * [(365 - p) / (235)]^{1.5}$  (f / 15)

From "Air Pollution Engineering Manual" by the Air and Waste Management Association, Edited by Anthony J. Buonicore and Wayne T. Davis, Van Nostrand Reinhold, New York, 1992, Section 4 page 136. Fugitive Emissions, Storage-Pile Wind Erosion Equation 4.

1	Particle Size Multiplier PM =	From "Air Pollution Engineering Manual" by the Air and Waste Management Association, Edited by Anthony J. Buonicore and Wayne T. Davis, Van Nostrand Reinhold, New York, 1992, Section 4, page 136.
0.5	Particle Size Multiplier PM <sub>10</sub> =	
0.2	Particle Size Multiplier PM <sub>2.5</sub> =	
2	Silt Content (s) =	Based on United States Department of Agriculture Foreign Matter limit for U.S. Number 1 grade grain for corn (7 CFR 810.404).
120	Number of Wet Days (p) =	AP-42, Chapter 13, Section 13.2.1 Paved Roads, Figure 13.2.1-2. Mean number of days with 0.01 inch or more of precipitation (January 2011).
16.5	Unobstructed Wind Speed (v) =	Percent of the time the unobstructed wind speed exceeds 12 miles per hour based on the Evansville/Dress Regional Airport (i.e. the closest meteorological station) data obtained from the SCRAM Surface Meteorological Archived Data 1984 to 1992 ( <a href="http://www.epa.gov/scram001/surfacemetdata.htm">http://www.epa.gov/scram001/surfacemetdata.htm</a> ).
365	Number of Days Pile is Uncovered =	Worst case estimate

Storage Pile Wind Erosion Emission Factor =	PM	PM <sub>10</sub>	PM <sub>2.5</sub>
	2.60	1.30	0.52

lb/acre/day

WIND EROSION EMISSIONS FROM STORAGE PILES

PTE (tons/yr) = (Emission Factor (lb/acre/day)) \* (Maximum Pile Size (acres)) \* (Number of Days Pile is Uncovered) \* (ton/2000 lbs)

	PTE PM (tons/year)	PTE PM <sub>10</sub> (tons/year)	PTE PM <sub>2.5</sub> (tons/year)
Current Permit	2.00	1.00	0.40

Abbreviations

- lb = pound
- PM = particulate matter
- PM<sub>10</sub> = particulate matter with a nominal aerodynamic diameter of 10 microns or less
- PM<sub>2.5</sub> = particulate matter with a nominal aerodynamic diameter of 2.5 microns or less
- PTE = Potential to Emit

**Emissions Calculations - Unpaved Haul Roads**  
**Gavilon Grain, LLC**  
**7646 North 125 East, Shelburn, Indiana 47879**

Changes to calculations from last permit revision reflect use of new east pile reclaim conveyor and shipping leg instead of trucks to reclaim the east storage pile

**Maximum Potential to Emit**

**Unpaved Roads at Industrial Site**

The following calculations determine the amount of emissions created by unpaved roads, based on maximum annual throughput and AP-42, Ch 13.2.2 (12/2003). The number of trucks unloaded and loaded each day varies widely depending upon the season (harvest versus non-harvest). Annual haul road emissions are based on the maximum annual throughput amount of grain (grain received and grain shipped).

Vehicle Information		Used 18-wheel vehicle (i.e. semi), since this type of vehicle results in the most conservative emissions estimate.	
Empty Vehicle Weight =	15	tons	
Full Vehicle Weight =	40	tons	
Weight of Each Load of Grain =	25	tons	Full Vehicle Weight minus Empty Vehicle Weight

Material Hauled	
Maximum Grain Receipts from Farm=	499,837 tons/year
Maximum Grain Shipments from Farm=	499,837 tons/year
Maximum West Pile Internal Transfer=	30,030
Maximum Grain Hauled =	1,029,705 tons/year

Number of Round Trips = 41,188 Material Hauled (tons/year) / Average Vehicle Weight (tons/trip)

Haul Road Length (Round Trip) = 0.4 miles

Vehicle Miles Traveled = 16,475 Number of round trips \* miles per round trip = miles/year

Unmitigated Emission Factor,  $E_f = k * [(s/12)^a] * [(W/3)^b]$  (Equation 1a from AP-42 13.2.2)

	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	2.6	2.6	2.6	% = mean % silt content of unpaved roads
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	25.0	25.0	25.0	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor,  $E_{ext} = E * [(365 - P)/365]$

Mitigated Emission Factor,  $E_{ext} = E * [(365 - P)/365]$

where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	
Unmitigated Emission Factor, $E_f =$	4.36	0.98	0.10	lb/mile
Mitigated Emission Factor, $E_{ext} =$	2.87	0.65	0.06	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM <sub>10</sub> (tons/yr)	Unmitigated PTE of PM <sub>2.5</sub> (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM <sub>10</sub> (tons/yr)	Mitigated PTE of PM <sub>2.5</sub> (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM <sub>10</sub> (tons/yr)	Controlled PTE of PM <sub>2.5</sub> (tons/yr)
35.93	8.10	0.81	23.62	5.33	0.53	11.81	2.66	0.27

**Methodology**

Unmitigated PTE (tons/yr) = (Maximum miles/year) \* (Unmitigated Emission Factor (lb/mile) \* (ton/2000 lbs)

Mitigated PTE (tons/yr) = (Maximum miles/year) \* (Mitigated Emission Factor (lb/mile) \* (ton/2000 lbs)

Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) \* (1 - Dust Control Efficiency)

The mean % silt content of unpaved roads is from the EPA website <http://www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-2.html>

**Abbreviations**

PM = Particulate Matter

PM<sub>10</sub> = Particulate Matter (≤10 μm)

PM<sub>2.5</sub> = Particulate Matter (≤2.5 μm)

PTE = Potential to Emit

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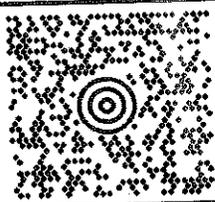
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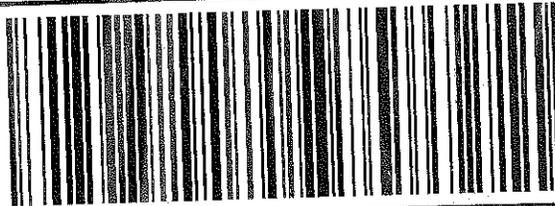
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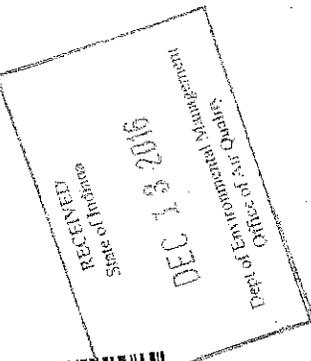
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